UNITED
NATIONS

A

General Assembly

Distr.
GENERAL

A/CONF.151/PC/100/Add.10
7 January 1992

ORIGINAL: ENGLISH

PREPARATORY COMMITTEE FOR THE UNITED
NATIONS CONFERENCE ON ENVIRONMENT
AND DEVELOPMENT
Fourth session
New York, 2 March-3 April 1992
Plenary session
Item 2 (c) of the provisional agenda*

PREPARATIONS FOR THE UNITED NATIONS CONFERENCE ON ENVIRONMENT AND DEVELOPMENT ON THE BASIS OF GENERAL ASSEMBLY RESOLUTION 44/228 AND TAKING INTO ACCOUNT OTHER RELEVANT GENERAL ASSEMBLY RESOLUTIONS: CROSS-SECTORAL ISSUES

Science for sustainable development

(Section IV, chapter 3 of Agenda 21)

Report of the Secretary-General of the Conference

I. INTRODUCTION

1. The present document has been prepared in response to Preparatory Committee decision 3/2 (see also document A/CONF.151/PC/52). This chapter focuses on using the sciences 1/ for supporting the prudent management of environment and development for the daily survival and future development of humanity. The programme areas proposed herein are intended to be over-arching in order to support the specific scientific requirements identified in the other chapters of Agenda 21. The role of the sciences should be foremost to enable better formulation and selection of environment and development policies for the decision-making process. In order to fulfil this requirement, it will be essential to enhance scientific understanding, improve long-term scientific assessments, build up scientific capacities in all countries and ensure that the sciences are responsive to emerging needs.

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* A/CONF.151/PC/96.

2. Scientists 2/ are improving their understanding of likely trends such as climatic changes, growth in rates of resource consumption, population dynamics and environmental degradation. Changes in those and other areas need to be taken into account in working out long-term strategies for development. As a first step towards improving the scientific basis for these strategies, a better understanding of the "Earth System" 3/ is essential to provide a more accurate estimate of the carrying capacity of the planet and of its resilience under the many stresses placed upon it by human activities. The sciences can provide this understanding through improved networks of ground observation and through the application of modern, effective and efficient tools that are now available, such as remote-sensing devices, robotic monitoring instruments and computing and modelling capabilities. The sciences are already linking the fundamental significance of this Earth System as a life support with appropriate strategies for development that build on its continued functioning. The sciences are also playing an increasing role in improving the efficiency of the utilization of renewable and non-renewable resources. Thus, the sciences are increasingly being understood as an essential component in the search for feasible pathways towards sustainable development.

3. Scientific knowledge should be applied to support the goals of sustainable development through scientific assessments of current conditions and future prospects. Such assessments, based on existing and new approaches within the sciences, should be used in the decision-making process, as well as in the interactive processes between the sciences and policy-making. There needs to be an increased output from the sciences in order to enhance understanding and facilitate interaction between science and society. An increase in scientific capacity to achieve these goals will also be required, particularly in developing countries. Of crucial importance is the need for scientists in developing countries to participate fully in international scientific research programmes dealing with the global problems of environment and development so as to allow all countries to participate on equal footing in negotiations on global environmental and developmental issues. In the face of threats of irreversible environmental damage, lack of full scientific certainty should not be an excuse to postpone actions which are justified in their own right. The precautionary principle provides a scientifically sound basis for policies relating to complex systems that are not yet fully understood and whose consequences of disturbances cannot yet be predicted. 4/

4. The programme areas, which are in harmony with the conclusions and recommendations of ASCEND 21 (the International Conference on an Agenda for Science and Development), 5/ are:

(a) Strengthening the scientific basis for sustainable management;

(b) Enhancing scientific understanding;

(c) Improving long-term scientific assessment;

(d) Building up scientific capacity.

II. PROGRAMME AREAS

A. Strengthening the scientific basis for sustainable management

1. Basis for action

5. Sustainable development requires taking longer-term perspectives, integrating local and regional effects of global change into the development process, and using the best scientific knowledge available. Even so, the future is uncertain, and there will be surprises. Good environmental and developmental management policies must therefore be robust, seeking to keep open a range of options to ensure flexibility of response. Application of the precautionary principle is fundamental. There is often a communication gap between scientists, political policy-makers, and the public at large, particularly as articulated by non-governmental organizations. Better communication is required among scientists, and between them, decision-makers, and the general public.

2. Objectives

6. The primary objective is to achieve by the year 2000 substantial improvements in:

(a) Large-scale strengthening of the scientific and research capacities of developing countries, particularly in areas relevant to environment and development;

(b) Environmental and developmental policy formulation, building upon the best scientific knowledge and assessments, and taking into account the relative uncertainties among the various processes and options involved;

(c) The interaction between the sciences and decision-making, in particular using the precautionary principle to change the existing patterns of development and resource consumption in order to gain time for reducing uncertainty with respect to the selection among policy options;

(d) The generation and application of knowledge about the capacities of different environments and cultures in order to achieve sustained levels of development, taking into account the interrelations between global, regional and local conditions.

3. Activities

7. The following activities should be undertaken:

(a) Strengthen and design appropriate institutional mechanisms at the highest national and regional levels and within the United Nations system for ensuring a scientific basis for the improvement of environmental and developmental policy formulation consistent with long-term development goals.

Current research in this area should be broadened to include more involvement of the public in establishing long-term societal targets for formulating the development scenarios.

(b) Develop, apply and institute operational tools for sustainable development, with regard to:

(i) Quality of life indicators covering, for example, health, education, social welfare, state of the environment, and the economy;

(ii) Environmentally sound economic approaches as well as new and improved incentive structures for better resource management; 6/

(iii) Long-term environmental policy formulation, risk management and environmentally sound technology assessment. 7/

(c) Collect, analyse and monitor data to study the linkages between the state of ecosystems and the health of human communities, and to improve knowledge of the cost and benefits of different development policies and strategies in relation to health and the environment, particularly in developing countries.

(d) Conduct comparative national studies of pathways towards sustainable development, using comparable and complementary methodologies. Such studies, coordinated by an international science effort, should to a large extent involve local expertise and be conducted by multidisciplinary teams from regional networks and/or research centres. 8/

(e) Improve mechanisms for determining scientific research priorities at the national, regional and global levels to meet the needs of sustainable development. This is a research process that inevitably involves scientific judgements regarding short-term and long-term benefits and possible long-term costs and risks. It should be adaptive and responsive to perceived needs, and needs to be carried out via a transparent, "user-friendly" risk evaluation methodology which has not yet been developed.

(f) Develop methods to link the findings of the established sciences with the indigenous knowledge of different cultures. The methods should be tested using pilot studies. They should be developed at the local level and should concentrate on the links between the traditional knowledge of indigenous groups and corresponding current "advanced science", with particular focus on disseminating and applying the results towards environmental protection and sustainable development.

4. Means of implementation

8. Financing and cost evaluation: this programme area will cost about US$ 40 million per year over the 1993-2000 period, which includes US$ 15 million in international assistance.

9. Scientific and technological means include the following:

(a) Support new scientific research priority programmes at the national, subregional, regional and global levels and increase interdisciplinary research related to environmental degradation and rehabilitation;

(b) Set up demonstration models of different types (e.g., socio-economic, environmental conditions) to study methodology and formulate guidelines;

(c) Support research objectives by developing a relative risk evaluation method for ranking research priorities in importance.

B. Enhancing scientific understanding

1. Basis for action

10. In order to promote sustainable development a thorough knowledge is required of the Earth's carrying capacity, including the processes that could either impair or enhance its ability to support life. The global environment is changing more rapidly than at any time in recent centuries; as a result, surprises must be expected, and the next century may see environmental conditions unprecedented in the last 10 millennia. At the same time, human consumption of energy, water and other renewable resources is increasing, on both a total and a per capita basis, and serious shortages may ensue in many parts of the world even if environmental conditions were to remain unchanged. Social processes are subject to multiple variations across time and space, regions and culture: they both affect and are influenced by changing environmental conditions. Human factors are key driving forces among these intricate sets of relationships and exert their influence directly on global change. Therefore, study of the human dimensions of the causes and consequences of environmental change and of more sustainable development paths is essential.

2. Objectives

11. A key objective is to improve and increase the development of analytical and predictive tools to enhance scientific understanding of:

(a) The ways in which the carrying capacity of the Earth is conditioned by its natural systems, namely the biogeochemical cycles, the atmosphere-ocean-biosphere-cryosphere climate system, the biosphere and biodiversity, the food and fibre system and the land-freshwater system;

(b) The ways in which the Earth's natural systems are increasingly being transformed by human actions, both deliberate and inadvertent, and the impact and consequences of these transformations;

(c) The population dynamics, socio-economic systems and per capita consumption patterns that drive the anthropogenic changes in the Earth's natural systems. 9/

3. Activities

12. The following activities should be undertaken:

(a) Develop an expanded monitoring network to describe the global biogeochemical cycles and test hypotheses regarding their behaviour, and improve research into the interactions among the various global cycles and their consequences at the national and regional levels as guides to tolerance and vulnerability. 10/

(b) Support national and international observation and research programmes in global atmospheric chemistry and the sources and sinks of greenhouse gases, and ensure that the results are presented in a publicly accessible and intelligible form.

(c) Support national and international research programmes 11/ on terrestrial systems, establish a global database of their components, expand corresponding systems for monitoring their changing state and enhance predictive modelling of the Earth system and its subsystems, including modelling of the functioning of these systems under different intensities of human impact.

(d) Develop the capacity for predicting the responses of terrestrial, freshwater, coastal and marine ecosystems and biodiversity to short- and long-term perturbations of the environment. Develop further restoration ecology. Study the role of biodiversity and the loss of species in the functioning of ecosystems and the global life support system. 12/

(e) Initiate a global observing system of parameters needed for the rational management of coastal zone resources and significantly expand freshwater quantity/quality monitoring systems, particularly in developing countries.

(f) Research, develop and apply systems and technology that automatically monitor, record and transmit data and information to databases in order to monitor marine, terrestrial and atmospheric systems and provide advance warning of natural disasters.

(g) Enhance the contribution of the engineering sciences to multidisciplinary research programmes on the Earth system, in particular with regard to increasing preparedness and reducing negative effects of major natural disasters.

(h) Intensify research on relationships among population dynamics, consumption patterns and environmental degradation at the national, regional and global levels. 13/

4. Means of implementation

13. Financing and cost evaluation: this programme area, which is primarily related to global environmental issues, will cost about US$ 1 billion per year over the period 1993-2000, of which about US$ 750 million should be in international financing, building on ongoing 14/ and newly started programmes and activities.

14. Scientific and technological means include the following:

(a) Support the relevant national research activities of academia, research institutes and non-governmental organizations, ensuring their active participation in regional and global programmes, particularly in developing countries;

(b) Use enabling systems and technologies, such as supercomputers, space-based observational technology, Earth- and ocean-based observational technologies, data management and database technologies. 15/

15. Other means include finding ways of turning arms reduction efforts into environmental security efforts.

C. Improving long-term scientific assessment

1. Basis for action

16. Meeting scientific research needs in the environment-development field is only the first step in the support that the sciences can provide for the sustainable development process. The knowledge acquired must then be used to provide scientific assessments (audits) of the current status and for a range of possible future conditions. The factors of most importance to a majority of people are health, quality of life, and socio-economic and environmental security. This implies that the biosphere must be maintained in a healthy state and that losses of biodiversity must be slowed down. Although many of the long-term environmental changes that are likely to affect people and the biosphere are global in scale, the changes experienced as the most important ones are those at the national and local levels. At the same time, human activities at local and regional levels often contribute to global threats, e.g. stratospheric ozone depletion. Thus, scientific assessments and projections are required at the global, regional and local levels. Many countries and organizations already prepare reports on environment and development, which review current conditions and indicate future trends. Regional and global assessments could make full use of such reports but should be broader in scope and include the results of detailed studies of future conditions for a range of assumptions about possible future human responses, using the best available models. It is vital that all such assessments be designed to map out manageable development pathways within the environmental and socio-economic carrying capacity of each region.

2. Objectives

17. The primary objective is to provide assessments of the current status and trends in major developmental and environmental issues at the national, regional and global levels on the basis of the best available scientific knowledge in order to develop alternative scenarios for the different time and space scales required for long-term policy formulation.

3. Activities

18. The following activities should be undertaken:

(a) Coordinate existing data- and statistics-gathering systems relevant to development and environment issues so as to support optimally the preparation of these assessments, e.g. data on resource depletion, import/export flows, energy use, health impacts, demographic trends, etc; apply those data obtained through the activities identified in programme area B towards environment/development assessments at the global, regional and local scales; and ensure that these assessments are made widely available in a form that is understood and responsive to public needs.

(b) Develop a methodology to carry out national and regional audits, as well as a five-year global audit, on an integrated basis. 16/ The standardized audits should aim to help refine the pattern and character of development, examining particularly the capacities of global and regional life-supporting systems to meet the needs of human and non-human life forms, as well as identifying areas and resources vulnerable to further degradation. This task would involve all the relevant sciences at the national, regional, and global level, and would be organized by government agencies, universities and research institutions, assisted by international organizations and United Nations bodies when necessary. 17/

4. Means of implementation

19. Financing and cost evaluation: this programme area will cost about US$ 35 million per year over the period 1993-2000, of which US$ 18 million will be needed from international sources.

20. Data and information: with regard to the existing data requirements under programme area A, support should be provided for national data collection and warning systems. This would involve setting up database, information and reporting systems, including data assessment and materials dissemination in each region.

D. Building up scientific capacity

1. Basis for action

21. In view of the increasing role the sciences have to play in dealing with issues of environment and development, it is necessary to strengthen the scientific capacity in developing countries beyond the critical level to enable them to participate fully in the generation and application of the results of scientific research and development to sustainable development. There are many ways to build up scientific and technological capacity. Some of the most important of them are: education and training in science and technology; assistance to developing countries to improve infrastructures for research and development which could enable scientists to work more productively; development of incentives to encourage research and development; and greater utilization of their results in the productive sectors of the economy. Such capacity building would also form the basis for improving public awareness and popularizing the sciences. A special emphasis is needed to enable developing countries to build up their own capacity to study their own resource base and ecological systems and manage them better in order to meet national, regional and global challenges. Furthermore, in view of the size and complexity of global environmental problems, a need for more specialists in several disciplines has manifested itself world wide.

2. Objectives

22. The primary objective is to improve the scientific capacities of developing countries, particularly with regard to:

(a) Education, training and facilities for local research and development;

(b) Doubling, by the year 2000, the number of scientists in those developing countries where their number is presently insufficient, particularly women scientists;

(c) Reducing significantly the exodus of scientists from developing countries;

(d) Improving access to relevant information for scientists and decision makers, with also the aim of improving public awareness of scientific knowledge;

(e) Involvement of scientists in regional and global environmental and developmental research programmes, including multidisciplinary research.

3. Activities

23. The following activities should be undertaken:

(a) Promote education and training of scientists, not only in their disciplines, but also in their ability to identify, manage and incorporate environmental values in research and development projects; ensure that a sound base in natural systems, ecology and resource management is provided; and develop specialists 18/ capable of working in interdisciplinary programmes related to environment and development, including the field of applied social sciences.

(b) Strengthen the scientific infrastructure in schools, universities and research institutions, particularly those in developing countries, by the provision of adequate scientific equipment and access to current scientific literature, for the purpose of achieving and sustaining a critical mass of highly qualified scientists in these countries. 19/

(c) Develop and expand national scientific and technological databases, processing data in unified formats and systems, and allowing easy access to the depository libraries of regional scientific and technological information networks.

(d) Develop and expand regional and global scientific and technological information networks, which are based on and linked to national scientific and technological databases and collect, process and disseminate information from regional and global scientific programmes; expand activities to reduce information barriers due to language differences. 20/

(e) Develop, strengthen and forge new partnerships among national, regional and global capacities to promote the exchange of scientific and technological data and information, as well as to facilitate technical assistance related to environmentally sound and sustainable development. This should be done through the development of mechanisms for the free exchange of basic research and the improvement and development of international networks and centres, including regional linking with national scientific databases, for research, training and monitoring. Such mechanisms should be designed so as to enhance technical cooperation among environmental scientists in different developing countries, as well as to have established strong national and regional alliances between industry and research institutions. 21/

(f) Develop links between existing networks of natural and social scientists and universities at the international level, in order to strengthen national capacities in the formulation of policy options in the field of environment and development.

(g) Compile, analyse and codify information on indigenous environmental and developmental knowledge treating it as intellectual property.

4. Means of implementation

24. Financing and cost evaluation: this programme area will cost about US$ 750 million per year for the period 1993-2000, of which US$ 470 million will be needed from international sources, keeping absorptive capacity in view.

25. Scientific and technological means include increasing and strengthening regional multidisciplinary research and training networks and centres and associated sustainable development and technology support systems in developing regions. 22/

26. Capacity building includes the following:

(a) Create conditions (e.g. salaries, equipment, libraries) to ensure that the scientists will work effectively in their home countries. Financial incentives are required to make the scientists stay rather than emigrate.

(b) Enhance national, regional and global capacity to carry out scientific research and apply scientific and technological information towards environmentally sound and sustainable development. This includes a need to increase financial resources to global and regional scientific and technological information networks to function effectively and efficiently in satisfying developing countries' scientific needs.

Notes

1/ The sciences conventionally embrace a wide field that is subdivided, for example, into the natural sciences (biology, physics, chemistry, etc.), the health sciences (medicine, toxicology, dentistry, public health, etc.), the engineering sciences (civil, chemical, sanitary, mechanical, etc.) and the social sciences (economics, sociology, demography, political science, law, etc.).

2/ The term "scientists" used in this document embraces those who practice in all the subdivisions mentioned in note 1.

3/ Land, oceans, atmosphere and their interlocking water, nutrient and biogeochemical cycles and energy flows all form part of the Earth System.

4/ The precautionary principle is an emerging concept of special significance to public policy. In essence, it asserts that there is a premium on a cautious and conservative approach to human interventions in complex environmental systems, avoiding as much as possible significant disturbance to those that are inadequately understood and appear susceptible to serious and irreversible injury. Applying this principle has the advantage of creating the opportunity for improving understanding of such systems so as to allow for continuous upgrading of the basis for policy formulation.

Notes (continued)

5/ The International Conference on an Agenda of Science for Environment and Development, held in Vienna in November 1991 to provide an input to the development of Science Agenda 21. The Conference, hosted by the Federal Government of Austria, was organized by the International Council of Scientific Unions (ICSU), in cooperation with the Third World Academy of Sciences (TWAS), and was sponsored by the European Science Foundation (ESF), the International Institute for Applied Systems Analysis (IIASA), the International Social Science Council (ISSC), the Norwegian Research Council (NAVF) with the Academy of Science and Letters, and the Stockholm Environment Institute (SEI). It brought together the understanding and assessment of some 250 members of the world's scientific community from nearly 70 countries on issues of highest priority for the future of environment and development.

6/ See sect. I, chap. 7 of Agenda 21, "Integration of environment and development in decision-making" (A/CONF.151/PC/100/Add.8).

7/ See sect. IV, chap. 2 of Agenda 21, "Transfer of environmentally sound technology" (A/CONF.151/PC/100/Add.9).

8/ These national studies are expected to involve countries in all major developing regions and would be coordinated by teams from the multidisciplinary science centres (see programme area D, paras. 21-26).

9/ See objectives of programme area A in sect. I, chap. 4 of Agenda 21, "Demographic dynamics and sustainability" (A/CONF.151/PC/100/Add.2).

10/ The elements monitored should include water, carbon, nitrogen, phosphorus and sulphur; the associated environmental fields should also be monitored. The most important substances in the life-support system, requiring greater scientific understanding, are:

(a) Water: large-scale land-atmosphere-ocean-freshwater interactions: the biological, geological and chemical interactions in the hydrologic cycle; closing the gap between terrestrial hydrol gy and ecology; water as a transport mechanism for pollutants and nutrients;

(b) Carbon: the biological controls involved; the strength of the oceanic carbon sink; and the fine-scale linkages of the carbon cycle with global climate models;

(c) Nitrogen: the consequences of nitrogen fertilization of terrestrial ecosystems, fresh and marine waters, for example on carbon storage in forests and oceans;

(d) Phosphorus: the effects of natural and human-mediated processes of phosphorus translocation and movement; the magnitude of natural sources and their possible exhaustion by mining;

Notes (continued)

(e) Sulphur: sulphate reduction following eutrophication in coastal waters; acidification in tropical countries; oceanic methyl sulphide fluxes.

11/ Examples include the Global Biodiversity Strategy (GBS); the Global Climate Observing System (GCOS), which includes the Global Ocean Observing System (GOOS) with its components on coastal zones; the programme on the Human Dimension of Global Environmental Change (HDGEC); the International Geosphere-Biosphere Programme (IGBP); the International Hydrological Programme (IHP); the Man and Biosphere Programme (MAB); the Global Change System for Analysis, Research, and Training (START), the World Conservation Programme's (WCP) World Climate Research Programme (WCRP); and other programmes, mentioned in other Agenda 21 chapters, that support mechanisms for the cooperation and coherence of research programmes on global change.

12/ As regards studies on biodiversity, by supporting, among others, the International Union for the Conservation of Nature and Natural Resources (IUCN), and the International Union of Biological Sciences/Scientific Committee on Problems of the Environment/UNESCO initiative. See also sect. II, chap. 7 of Agenda 21, "Conserving biological diversity" (A/CONF.151/PC/100/Add.20).

13/ See sect. I, chap. 4 of Agenda 21, "Demographic dynamics and sustainability" (A/CONF.151/PC/100/Add.2).

14/ These programmes could include the WCP/WCRP, IGBP, HDGEC, GBS, MAB and IHP.

15/ Some of these systems could include:

(a) Developing and expanding the Global Climate Observing System (GCOS), including the Global Ocean Observing System (GOOS). Funds could come from WMO, the Intergovernmental Oceanographic Commission, national Governments and non-governmental organizations;

(b) Supporting the Global Change System for Analysis, Research and Training (START): set up three centres and networks for research, training and observation, based in developing regions (North Africa, South-East Asia, and South America);

(c) The Global Environmental Monitoring System (GEMS) and Global Resources Information Database (GRID), coordinated by UNEP;

(d) New databases of terrestrial components and demographic and socio-economic variables must be developed;

(e) Expanding freshwater quantity/quality monitoring systems in developing countries;

Notes (continued)

(f) Developing a global observing system of rational management parameters for coastal zone resources.

16/ The audits would consist of data on the state of the environment's resilience and fragility, analysed to indicate trends in resource use and environmental degradation that act as warning signals, with the aim of guiding sustainable development. As a guide for the pattern and character of development, the audits should, through the use of carefully selected indicators of development, indicate the capacities of global and regional life support systems to meet the needs of human beings and other life forms, and identify those areas or resources which are vulnerable to further alteration. Such an audit would involve scientists from all relevant disciplines in every nation including, not least, the extensive knowledge of indigenous peoples and local communities. This work should be interdisciplinary and should involve community participation. These audits must be directed at critical zones where the capacity for human adjustment to live within natural means is manifestly undermined. Such criticality audits should be linked to enhancing the scope for human adjustment and aimed at uncoupling growth from environmental degradation. Specific activities could include:

(a) Making an inventory of ongoing assessment programmes in order to find out what supplementary activities are required for preparing a global audit;

(b) Examining the scope of local knowledge and traditional or well-established practices for incorporation into the auditing process, with a view to providing a perspective as to the coping mechanisms of local and national cultures in the face of environmental stress;

(c) Establishing representative task forces to help produce workable methodologies for such audits, drawing upon existing national and regional data gathering systems. Such task forces should have a special remit to advise on what additional data should be gathered, how such data can be made comparable, and in what ways this process can be made more intelligible to non-specialists;

(d) Identifying regions and/or people at special risk, where future development pathways will have to be chosen with the greatest care. A critical inventory of environmental and community vulnerability should become an important component of the global audit;

(e) Identifying and assessing environmentally critical areas, such as high impact of climate change; unusual diversity; inherent fragility; major human transformations expected for the landscape; high demographic pressures;

(f) Developing comprehensive regional assessments in which land and water development projects, and of national and regional policies (in trade, taxation, incentive, regulations, etc.);

Notes (continued)

(g) Determining the needs for scientific training for environmentally sound sustainable development.

17/ Many countries, institutions and United Nations bodies already periodically prepare assessments on environment and development, as well as state-of-the-environment reports, which could support this activity.

18/ Examples include atmospheric chemists, taxonomists and marine and freshwater scientists.

19/ This would include the introduction into school curricula at all levels of the appropriate material relevant to environment and development, including knowledge derived from women's experiences and indigenous groups. It would also entail the enhancement of the United Nations and non-governmental organization programmes and activities in capacity building in developing countries.

20/ United Nations bodies and other intergovernmental organizations should take the lead in developing and establishing such world-wide scientific and technological information networks; international non-governmental organizations should be encouraged to contribute in this regard.

21/ This would provide the basis for regional information clearinghouses that could facilitate technical assistance relevant to environmentally sound and sustainable development. This would also entail the enhancement of the South-South programmes of UNDP, UNESCO and the Third World Academy of Sciences.

22/ To complement existing and new activities, the functions of the regional networks and centres could include:

(a) Promotion of development and dissemination of environmentally sound technologies;

(b) Organization of science education and technical/managerial training;

(c) Support and coordination of national studies of pathways towards sustainable development;

(d) Linking with monitoring centres, and carrying out assessment of environmental and developmental conditions;

(e) Establishment and maintenance of information, monitoring and assessment systems and databases;

(f) Support and coordination of scientific cooperation among all nations in the region.

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Distr.
GENERAL

A/CONF.151/PC/100/Add.11
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National mechanisms and international cooperation for capacity-building

(Section IV, Chapter 5 of Agenda 21)

Report of the Secretary-General of the Conference

I. INTRODUCTION

1. The present report has been prepared pursuant to Preparatory Committee decision 3/2. Where applicable, capacity-building is addressed in each programme area. Several chapters of Agenda 21 constitute essential elements of capacity-building including: Integration of environment and development in decision-making (sect. I, chap. 7); Transfer of environmentally sound technology (sect. IV, chap. 2); Science for sustainable development (sect. IV, chap. 3); and Promoting education, training and public awareness (sect. IV, chap. 4). 1/ The synthesis of national reports (A/CONF.151/PC/98) is also relevant to this issue in its consideration of the importance of political, economic, socio-cultural and eco-geographical realities and specificities. Therefore, this chapter is limited in its focus to the overall national and international enabling processes, especially technical cooperation, needed to strengthen and build national capacity for environment and development. 2/

II. PROGRAMME AREA

Basis for action

2. The ability of a country to follow sustainable development paths is determined to a large extent by the capacity of its people and its institutions. Specifically, capacity-building encompasses the country's human, scientific, technological, organizational, institutional and resource capabilities. A fundamental goal of capacity-building is to enhance the ability to evaluate and address the crucial questions related to policy choices and modes of implementation among development options, understanding the environmental potentials and limits and the needs as perceived by the people of the country concerned. As a result, the need to strengthen national capacities is shared by all countries.

3. Building endogenous capacity 3/ to implement Agenda 21 will require the efforts of countries themselves in partnership with the international community. Technical cooperation encompasses the whole range of activities to develop or strengthen individual and group capacities through the improvement in the level of skills, knowledge and technical know-how. This is a prerequisite of institution-building and improved policy analysis and development management, including the assessment of alternative courses of action. In this context, technical cooperation should serve the purpose of long-term capacity-building, and needs to be managed and coordinated by the developing countries themselves. Technical cooperation is effective only when it is derived from and related to a developing country's own strategies and priorities on environment and development and if assistance agencies and national governments can agree on improved and more consistent policies and procedures to support this process.

A. Objectives

4. The overall objective of this programme area is to acquire, develop and maintain national and related regional capacities for sustainable development, including the non-governmental sectors, achieving inter alia:

(a) The promotion of an ongoing participatory process to define country needs and priorities in promoting Agenda 21 and to place investment in human development and institutions high on the agenda of countries and donors;

(b) The reorientation of the technical cooperation process from supply-based to demand-driven, while improving coordination among providers of assistance to support countries' own programmes of action. This coordination should also include scientific and technological institutions as well as business and industry whenever appropriate;

(c) A shift in time horizons in programme planning, addressing the strengthening of institutional structures to be able to respond to new longer-term challenges rather than concentrating on immediate problems.

5. Specific objectives include the following:

(a) By 1994, each interested country should complete a review of its capacity-building requirements for generating and implementing its own Agenda 21 action programme; 4/

(b) By 1995, a report should be prepared on progress achieved by developing countries, international organizations, environmental and development institutions, donor agencies and non-governmental partners in improved policies, coordination systems and procedures for strengthening the implementation of technical cooperation programmes for sustainable development, as well as on additional measures required to strengthen such cooperation. 5/

B. Activities

1. Build national consensus and formulate capacity-building strategies for implementing Agenda 21

6. As an important aspect of overall planning, each country should seek internal consensus at all levels of society on policies and programmes needed for short- and long-term capacity-building to implement its Agenda 21 programme. This consensus should result from a participatory dialogue of interest groups (stakeholders) and lead to an identification of skill gaps, institutional needs, technological and scientific requirements and resource needs to enhance environmental knowledge and administration and to establish the appropriate linkages with other sectors. The UNDP country programming process should be used to identify requirements for technical cooperation and development assistance for the implementation of Agenda 21, and its Sustainable Development Networks initiative should provide the framework for such cooperation and assistance. 6/

2. Identify national sources and present technical cooperation requests in the framework of sector strategies

7. Developing countries that desire technical cooperation arrangements with international organizations and donor institutions should formulate requests in the framework of long-term sector or subsector capacity-building strategies. Strategies should, inter alia, address policy changes to be implemented, budgetary issues, networking arrangements among institutions, human resource requirements, and technology and equipment requirements. They should cover public and private sector needs and consider strengthening training, educational and research programmes. Countries could designate or establish, if required, a central unit to organize and coordinate technical cooperation, linking it with the priority-setting and resource allocation process.

3. Establish a review mechanism of the aid process

8. Donor and recipient countries, the organizations and institutions of the United Nations system, and international public and private organizations should review the development cooperation process as it relates to technical cooperation activities linked to sustainable development. To facilitate this process, consultations should be undertaken with developing countries, regional organizations, organizations and institutions of the United Nations system and multilateral and bilateral aid and environment agencies, based on the preliminary work carried out by UNDP in preparation for the Conference, with a view to further strengthening the endogenous capacities of developing countries and improving the technical cooperation process. The following aspects should be reviewed:

(a) Evaluation of existing capacity for environmental management including technical and institutional abilities and facilities to assess environmental impact of development projects; evaluation of the abilities to respond and link to the technical cooperation needs of Agenda 21 and the global conventions on climate change and biological diversity;

(b) Assessment of the contribution of existing technical cooperation activities towards strengthening and building national capacity in environmental management and means of improving the quality of external technical cooperation;

(c) A strategy for shifting to a more strategic, capacity-building thrust with longer term commitments, having as a basis the set of national programmes established by each developing country;

(d) Consideration of greater use of long-term cooperative arrangements, such as twinning and "linkage" grants joining together municipalities, non-governmental organizations, universities and research centres, and private institutions with counterparts in other countries or within countries or regions. Programmes such as the Sustainable Development Networks of UNDP should be assessed in this regard;

(e) Strengthening of the sustainability of projects by including in the original project design the costs of institution building, human resource development and technology needs, as well as financial and organizational requirements for operation and maintenance;

(f) Improving the technical cooperation and decision-making process by giving greater attention to capacity-building strategies for environment and development programmes both in country-related coordination processes, such as consultative groups and round-tables, and in sectoral coordination mechanisms to enable developing countries to participate actively in the brokering of assistance from different sources.

4. Enhance the expertise and collective contribution of the United Nations system for capacity-building initiatives

9. Organizations and institutions of the United Nations system together with other international and regional organizations as well as the private sector should establish more joint technical cooperation activities, joint programming exercises and missions to address linked environment and development issues and to ensure coherence and consistency of action. Organizations should establish special networks to assist countries on matters relating to national environmental policies, legislation, natural resources and environmental data.

10. UNDP should play a leading role in mobilizing significant funding for capacity-building utilizing its network of field offices and its broad mandate and experience in the field of technical cooperation. UNDP should at the same time take the lead in forming consultative processes to enhance mobilization and coordination of funds from the international community for capacity-building, including establishing an appropriate database. These additional responsibilities need to be accompanied by strengthening of its own capacities.

11. The national entity in charge of technical cooperation, with the assistance of the UNDP resident representatives, should establish a small group of key actors to steer the process, giving priority to the country's own strategies and priorities. The experience gained in many countries through the preparation of national reports should prove useful in this connection. This should be complemented with information networks and consultations with donor organizations in order to improve coordination, as well as to improve access to the existing body of scientific and technical knowledge and information available in institutions elsewhere.

5. Harmonize the delivery of assistance at the regional level

12. At the regional level, existing organizations should consider the desirability of improved regional and subregional consultative processes and round tables to facilitate the exchange of data, information and experience in the implementation of Agenda 21. UNDP, building on the results of the regional surveys on capacity-building which they carried out at the initiative of the Conference secretariat, 7/ and in collaboration with existing regional, subregional or national organizations with a potential for regional coordination, should operate as a focal point for this purpose, such as the African capacity-building initiative. A periodical review mechanism should be established among the countries of the region with the assistance of the appropriate relevant regional organizations and the participation of the development banks, bilateral aid agencies and non-governmental organizations. Other possibilities are to develop national and regional research and training facilities building on existing regional institutions. 8/

C. Means of implementation

13. Financing and costing: The cost of technical cooperation bilateral expenditures to developing countries is about $15 billion or about 25 per cent of total official development assistance. The implementation of Agenda 21 will require a more effective use of these funds and additional funding in key areas. Specific funding requirements are included in each programme area. Support for the Secretary-General's consultative process will require approximately $1 million.

14. As reflected in paragraph 10, there is a need for a new funding mechanism coordinated by UNDP to provide lead and catalytic funding to give effect to a major capacity-building initiative. Amounts suggested could be in the range of 300-500 million per year, rising over five years to some $1 billion per year. This includes the establishment of a consultative group process that could be managed by UNDP and assisted by a technical advisory committee to mobilize funding from all sources for capacity-building.

Notes

1/ Such building blocks, which are separately addressed in other chapters of Agenda 21 include, inter alia, the following:

(a) The provision of a stimulating environment, political, economic, legal, fiscal and otherwise;

(b) The capacity to mobilize and transfer resources, finance and knowledge in a creative way, in support of sustainable development, including transfer of technologies;

(c) Access to and capacity to process information (economic, technological, scientific and otherwise) including the capacity for sustainable development assessment, based on environmental impact analysis, technology assessment, risk analysis and policy formulation;

(d) The capacity to manage, organize and implement effectively policies, plans, programmes and projects, where organizational, management and technical skills are equally necessary;

(e) The critical mass of hands-on competence in research, development, demonstration, engineering and production, including all levels of support systems and skills, particularly intermediate technical skills, such as required in maintenance and repair;

(f) Basic education - including science and environment - for the masses, with special effort in the education of women, which requires long-term commitment of resources;

Notes (continued)

(g) The capacity to tap into international and regional cooperation networks and institutions concerned with financing, technology transfer, research and training partnerships, advisory services, legal and otherwise, information exchange, etc.

2/ UNDP is preparing a global survey with data on capacity-building needs based on regional and national comprehensive information that will be provided to the Preparatory Committee as a Research Paper. UNDP also launched the Sustainable Development Networks (SDN) which is aimed at building capacities through enhancing information networks among interested parties.

3/ This concept broadens the definition of endogenous capacity established by the Advisory Committee on Science and Technology for Development: "the degree of domestic capability to exercise independent, informed judgement and initiate actions regarding acquisition, deployment and generation of science and technology for economic and social development. This capacity is to be seen in the context of increasing complexity in the ability to manage technological change" (report of the Advisory Committee on Science and Technology for Development on its eleventh session, A/CN.11/1991/6, annex II, para. 1).

4/ This review should include current status and needs for change. Many countries have already started this review with the assistance of UNDP.

5/ UNDP is completing national studies that will be ready by 1993.

6/ The national programmes of action should operate as the centrepiece for mobilizing technical cooperation. The generation and implementation of the national Agenda 21 of each country concerned requires the promotion and implementation of an ongoing participatory decision-making process where the relevant stakeholders in development - bankers, entrepreneurs, government authorities, politicians, union leaders, scientists, engineers, peasants and farmers, consumers, representatives of the organized public, including women's groups, etc. - engage in dialogues at various levels and for all sectors of the economy. Such dialogues aim at building a consensus on the needs and priorities for sustainable development and establish a portfolio of priority initiatives or programmes for capacity-building to be implemented through a coalition of resources, domestic and international. The objectives of the national dialogue could be:

(a) To induce policy adjustment necessary to create favourable conditions to bring the sustainable development approaches into the mainstream of thinking, planning and execution of social and economic development;

(b) To identify overlapping and/or conflicting interests among the relevant stakeholders;

(c) To promote a consensus among the stakeholders about the priority initiatives or missions;

(d) To establish enduring mechanisms to make the best use of the available local expertise and existing infrastructure and stimulate building up such resources for the future pursuant to the priorities agreed upon by the stakeholders;

(e) To identify the pattern and effectiveness of resource flows, domestic and international, into sustainable development and establish their adequacy in building endogenous capacity;

(f) To promote a coalition of resources, domestic and international, public and private, for the implementation of the portfolio of priority initiatives or programmes on sustainable development.

7/ As stated in note 2, UNDP has carried out capacity-building and sustainable development regional surveys. The preparation of these regional surveys was done in close consultation with the Governments of each region and with the international agencies operating at the regional level and with the support of the regional development banks. The leading environment and development organizations of each region provided their advice and guidance as to existing professional and institutional capacities in their region and the needs and potential for linking, strengthening and improving such capacities in the environment and development areas to be addressed by the Conference in Agenda 21.

The regional surveys identify:

(a) Major capacity-building requirements for sustainable development and for implementing Agenda 21 in developing countries;

(b) Present skills, existing capabilities and facilities, and potentials for strengthening, improving or expanding them as seen from the perspective of their country and region;

(c) Major institutional and funding gaps;

(d) Policy and legal framework level;

(e) Means for public participation;

(f) Existing facilities for linking institutions within one region with their counterparts in other regions and with external sources of knowledge, experience, expertise, technologies and financial and technical assistance and the needs and potential for expanding such facilities;

(g) Proposals for a programme of action, setting priorities, and institutional and financial options.

Notes (continued)

A full report with the results of the regional surveys will be available by the end of January 1992 and will be presented as a research paper to the Preparatory Committee at its fourth session.

8/ Specific proposals can be also found in document A/CONF.151/100/Add.26 addressing the role of regional organizations and cooperation.

UNITED
NATIONS

A

General Assembly

Distr.
GENERAL

A/CONF.151/PC/100/Add.12
16 January 1992

ORIGINAL: ENGLISH

PREPARATORY COMMITTEE FOR THE UNITED
NATIONS CONFERENCE ON ENVIRONMENT
AND DEVELOPMENT
Fourth session
New York, 2 March-3 April 1992
Plenary session
Item 2 (c) of the provisional agenda*

PREPARATIONS FOR THE UNITED NATIONS CONFERENCE ON ENVIRONMENT AND DEVELOPMENT ON THE BASIS OF GENERAL ASSEMBLY RESOLUTION 44/228 AND TAKING INTO ACCOUNT OTHER RELEVANT GENERAL ASSEMBLY RESOLUTIONS: CROSS-SECTORAL ISSUES

Information for decision-making

(Section IV, Chapter 9 of Agenda 21)

Report of the Secretary-General of the Conference

I. INTRODUCTION

1. Information as a cross-sectoral issue has been presented to the Preparatory Committee in the report of the Secretary-General to the third session (A/CONF.151/PC/41). The issues being dealt with in the present chapter have been discussed at the sectoral level in Working Groups I and II.

2. In sustainable development, everyone is a decision maker and hence a user and provider of information, in the broad sense, including data, information, appropriately packaged experience and knowledge. The need for information arises at all levels, from senior decision makers at the national and international levels to the grass-roots level and the individual. The

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* See A/CONF.151/PC/96.

following two programme areas need to be implemented to ensure that decisions are increasingly based on sound information:

(a) Bridging the data gap;

(b) Improving access to information.

II. PROGRAMME AREAS

A. Bridging the data gap

Basis for action

3. While considerable data already exist, as the various sectoral chapters of Agenda 21 indicate, more and different types of data need to be collected, at local, regional and global levels, indicating states and trends of relevant ecosystem, natural resource, pollution and socio-economic variables. The gap in the availability and accessibility of data between the developed and the developing world has been increasing, seriously impairing capacities of countries to make informed decisions concerning environment and development.

4. There is a general lack of capacity in developing countries, and in many areas at the international level, for the collection and assessment of data, for their transformation into useful information and for their dissemination. There is also need for improved coordination between environmental and developmental data and information activities.

5. Commonly used indicators such as GNP or measurements of individual resource or pollution flows do not provide adequate indications of sustainability. Methods for assessing interactions between different, sectoral environmental and developmental parameters are not sufficiently developed or applied. Indicators of sustainable development need to be developed to provide solid bases for decision-making at all levels and to contribute to a self-regulating sustainability of integrated environment and development systems.

Objectives

6. The following objectives are important:

(a) To achieve more cost effective data collection and assessment by better identification of users and their information needs at local, national, regional and global levels;

(b) To strengthen local, national and international capacity to collect and use multisectoral information in decision-making processes and to enhance capacities to collect and analyse data and information for decision-making, particularly in developing countries;

(c) To develop national and international mechanisms to ensure that planning for sustainable development in all sectors is based on timely, reliable and usable information;

(d) To make information accessible in the form and at the time required to facilitate its use by all people and institutions.

Activities

7. Development of indicators of sustainable development: countries at the national level and international governmental and non-governmental organizations at the international level should determine indicators of sustainable development. 1/ In order to ensure increasing use of some of these indicators in satellite accounts, and eventually national accounts, this needs to be coordinated with the United Nations Statistical Office.

8. Implementation of global monitoring of indicators of sustainable development: relevant United Nations agencies, in cooperation with other international organizations, should monitor a suitable set of sustainable development indicators, and indicators related to the global commons, such as, for example, open oceans, the upper atmosphere and outer space, and global conventions. They should coordinate with agencies such as UNDP (including its Sustainable Development Network programme), the World Bank and UNEP to provide guidance for the harmonized development of indicators at the national, regional and global levels; and that a suitable set of these are incorporated into common, regularly updated, and widely accessible reports and databases, for use at the international level, subject to national sovereignty considerations.

9. Improvement of data collection: within the United Nations, Earthwatch data collection activities need to be strengthened, especially in the areas of urban air, freshwater, land resources, including forests, rangelands, other habitats and soil degradation, biodiversity, and global atmosphere. In addition to strengthening existing development-related data collection, special attention needs to be paid to areas such as population dynamics, poverty, health, special groups, such as women, indigenous people, youth, and the relationships of these with environment issues. Countries and international organizations should carry out inventories of environmental, resource and developmental data available for each country, based on national/global priorities for sustainable development management, determine the gaps, and organize activities to fill the gaps.

10. Improvement of methods of data assessment and analysis: relevant international organizations should strengthen and develop guidelines for coordinated, harmonized collection and assessment of data at the national and international levels. Countries and international organizations should make use of new techniques of data collection, including data from satellite-based remote sensing. National and international data and information centres should make use of Geographic Information Systems (GIS), expert systems, models, and a variety of other techniques for the assessment and analysis of data. This will be particularly relevant as large quantities of data will need to be processed from satellite sources in the future. Developed countries and international organizations, such as UNEP's Global Environmental Monitoring System (GEMS) and Global Resource Information Database (GRID), as

well as the private sector should cooperate with developing countries to facilitate their acquiring these technologies and know-how.

11. Establishment of a comprehensive information framework: countries should undertake the necessary institutional changes at the national level to achieve the integration of environmental and developmental information. At the international level, the environmental assessment activities in United Nations System-wide Earthwatch 2/ need to be strengthened and coordinated with efforts led by UNDP and IBRD to assess development trends.

12. Strengthening of the capacity for traditional information: countries, with the assistance of international organizations, should establish supporting mechanisms to provide local communities and resource users with the information and methodologies they need to manage their environment and resources sustainable, applying traditional and indigenous knowledge and approaches when appropriate. This is particularly relevant for rural populations and indigenous, women's and youth groups.

Means of implementation

13. Finance and cost evaluation: financing will have to be increased, particularly for environmental data gathering/assessment at both the national and international levels, although some redeployment and greater efficiency in the use of existing funds could be possible by better targeting information needs and associated data collection and assessment activities.

14. The activities for data collection and assessments are expected to require international funding on the order of $1,500 million per year for global activities, $300 million per year for accelerated development efforts, and $70 million per year for international activities. The funding requirements of monitoring and assessment activities have been costed in other programme areas, in other chapters, except for the setting up of national centres for monitoring in developing countries, for which external costs are estimated to be up to $20 million per year, depending on the number of such centres established.

15. Institutional means: institutional capacity to integrate environment and development and to develop relevant indicators are lacking both at the national and international levels. Existing institutions such as GEMS and GRID within UNEP and different entities within the United Nations system-wide Earthwatch will need to be considerably strengthened. Earthwatch has been an essential element for environment-related data. While development-data-related programmes exist in a number of agencies, there is insufficient coordination between them. The development-data-related activities of agencies like UNDP, IBRD, etc. should be more effectively coordinated through an equivalent and complementary "Developmentwatch". This and the existing Earthwatch should be coordinated through the office of the Director-General for Development and International Economic Cooperation to ensure the full integration of environment and development concerns.

16. Scientific and Technological Means: transfer of technology: with the rapid evolution of data collection and information technologies it is necessary to develop guidelines and mechanisms for the rapid and continuous transfer of these technologies to developing countries and for training of personnel in their utilization.

17. Human and resources development: training in all areas and at all levels will be required, especially in developing countries. This will have to include technical training of those involved in data collection, assessment and transformation, as well as training decision makers to use such information.

18. Capacity building: all countries, particularly developing countries, should strengthen their capacity to collect, store, organize, assess and use data in decision-making more effectively. 3/

B. Improving access to information

Basis for action

19. There already exists a wealth of data and information which could be used for sustainable development management. Finding the appropriate information at the required time and at the relevant scale of aggregation is an increasingly difficult task.

20. Information within many countries is not adequately managed, because of a lack of awareness of the value and availability of information and other immediate pressing problems, especially in developing countries. Even where it is, it may not be easily accessible, either because of the lack of technology for effective access or because of associated costs, especially for information held outside the country and available commercially.

Objectives

21. Existing national and international mechanisms of information processing, exchange, and related technical assistance should be strengthened to ensure free, effective and equitable access to information generated at the national, regional, and international levels, subject to national sovereignty and intellectual property considerations.

22. National capacities should be strengthened, including within governments, non-governmental organizations, and the private sector, in information handling and communication, especially within developing countries.

Activities

23. Production of information usable for decision-making: countries and international organizations should review and strengthen information systems and services in sectors related to sustainable development, at the national,

regional, and international levels. Special emphasis should be placed on the transformation of existing information into forms more useful for decision-making, and targeted at different user groups. Mechanisms should be strengthened or established for transforming scientific and socio-economic assessments into information suitable for both planning and public information. Electronic and non-electronic formats should be used.

24. Establishment of standards and methods for handling information: Governments should support efforts by governmental as well as non-governmental organizations to develop mechanisms for efficient and harmonized exchange of information, at the national and international level, including revision of, and the establishment of data formats, access formats and mechanisms, and communication interfaces.

25. Development of information about information: the organizations of the United Nations system, as well as other governmental and non-governmental organizations should ensure that information about information be well documented and shared. Existing programmes, such as UN-ACCIS and INFOTERRA, should be reviewed and strengthened as required. Networking and coordinating mechanisms, between the wide variety of other actors, should be encouraged, including arrangements with non-governmental organizations for information sharing, donor activities for sharing information on sustainable development projects. The private sector should be encouraged to strengthen the mechanisms of sharing their experiences and information. An independent "Informationwatch" should be put in place to actively seek out and identify shortcomings in existing information systems, to identify missed opportunities, to make unmade connections between users and information systems, and to recommend specific areas for future development and investment.

26. Establishment of and strengthening of electronic networking capabilities: countries, international organizations, including organizations of the United Nations system and non-governmental organizations should exploit various initiatives for electronic links, to support sharing information, providing access to databases and other information sources, communication for meeting broader objectives, such as the implementation of Agenda 21, facilitating intergovernmental negotiations, monitoring of conventions and sustainable development efforts, transmitting environmental alerts, and transfer of technical data. These organizations should also facilitate the linkage of different electronic networks and the use of appropriate standards and communication protocols for the transparent interchange of electronic communications. Where necessary, new technology should be encouraged to enable participation of those not presently served by existing infrastructure and methods. Mechanisms should also be established to carry out the necessary transfer of information to and from non-electronic systems to ensure the involvement of those not able to participate in this way.

27. Making use of commercial information sources: countries and international organizations should undertake surveys of the supply and demand of sustainable development information, and of present communications arrangements, to determine gaps and how these could be filled by commercial or

quasi-commercial activity, preferably including activities in and/or involving developing countries where feasible. In addition, where there are no gaps, but there are economic barriers to supplying and accessing information, such as in developing countries, innovative schemes for explicitly subsidizing such information related access should be established.

Means of implementation

28. Finance and cost evaluation: this programme area involves strengthening existing country and international programmes. About $130 million per year will be needed for technical cooperation activities, and up to $35 million per year for strengthening activities in international organizations.

29. Institutional means: the institutional implications of this programme concern mostly the strengthening of already existing institutions. The independent "Informationwatch" mechanism could be an existing non-governmental organization, 4/ or a group of information professionals, specifically charged with the task. In any case, it should report to the same body charged with the follow-up of Agenda 21.

30. Capacity building: Developed countries and relevant international organizations should assist developing countries to expand their capacity to receive, contribute, disseminate, use and provide public access to relevant environmental information, by providing technology and training to establish local information services, and supporting partnership and cooperative arrangements between countries and on the regional level.

31. Scientific and technological means: developed countries, and relevant international organizations should support research and development in hardware and software and other aspects of information technology in developing countries, appropriate to their operations, environment and needs.

Notes

1/ The sustainability of the development process should be determined by indicators that are based upon appropriate environment and development variables that have been systematically observed and assessed.

2/ Earthwatch is a United Nations system-wide mechanism which, in collaboration with the international scientific community and other relevant organizations, gathers, integrates and analyses data and information on environment and development to identify potential global environmental problems and to produce multidisciplinary assessments of environmental states and trends at global, regional and national levels. These assessments enable early warnings of environmental threats and identification of policy responses and management actions necessary to achieve sustainable development.

Notes (continued)

3/ See the chapter entitled "National mechanisms and international cooperation for capacity building in developing countries" (A/CONF.151/PC/100/Add.11).

4/ Some efforts are already under way in this regard, such as for example the Fund for New Communications Networks coordinated by the Telecommunications Cooperative Network (TCN).